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LOUISIANA *Conservationist*

LOUISIANA WILD LIFE AND FISHERIES COMMISSION

FEBRUARY
1961



February, 1961

Vol. 13

No. 2

Conservation Pledge

I give my
pledge as an American
to save and faithfully to
defend from waste the
natural resources of
my country — its soil
and minerals, its
forests, waters,
and wildlife

Published monthly except May, June, July and August when bi-monthly in the interest of conservation by the Louisiana Wild Life and Fisheries Commission, Wild Life & Fisheries Building, 400 Royal Street, New Orleans, Louisiana.



Front Cover—

Louisiana is known as the Pelican State because the Pelican is the state bird. It symbolizes the vast array of state birds now on display in the new Louisiana Wild Life and Fisheries Museum, 400 Royal Street, New Orleans.

—(Cover picture by Jack Britt)

LOUISIANA Conservationist

LOUISIANA WILD LIFE AND FISHERIES COMMISSION

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Governor



L. D. YOUNG, JR.
Director

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Entered as second class mail matter August 21, 1947, at the Post Office at New Orleans, La., under the act of August 24, 1912.

EDITORIAL

NOW THAT THE DUST has settled on last year's deer season we deem it appropriate to answer certain criticisms that have come to our ears. First of all, we knew that our program being a new one would have some "bugs" in it and having made those mistakes we will be ready to circumvent them in the coming season.

Whereas the deer tagging law has brought on some scattered criticism, and we know that we can effect improvements in the future, the program has afforded us much valuable information that we have never had access to before. We know this because from the small amount of information we have had time to assimilate, and interpret so far, the whole tagging program gives great promise and from it we will be able to fill in the answers to many questions on deer herd management.



L. D. YOUNG, JR.
Director

Now there have been certain individuals who have seen fit to complain that there were too many deer killed on our game management areas during the past season.

It is a well known fact among conservationists that an area will only support a given number of deer and that when the browse is eaten off by an overpopulation of animals the herd sickens and dies of disease brought on by malnutrition or just plain starvation. Our files are full of accounts of what has resulted when deer population went uncontrolled. One has but to examine the history of deer herds in several of our sister states which have learned this tragic lesson the hard way.

Now let's take the case of one of the largest of our game management areas which came under criticism and let's give our scientists a chance to have their day and state the facts.

"This game management area, which was open for deer hunting during 1960, comprises approximately 100,000 acres. It has been estimated that the deer population in this area approaches one deer to ten acres. During the last season 746 deer were taken by hunters on this 100,000 acres of

land; this indicated a kill of less than ten percent of the total deer herd.

In previous years there has been an annual late winter die off of deer in this area; this has been attributed to over-population and associated conditions such as food shortage, disease and parasitism. It is quite likely that the total annual loss in previous years exceeded the actual kill of deer in this area during the past season.

As of this date, we feel that this deer herd is in better condition than it has been during the past several years. There are deer in adequate numbers over all of the area and there is no indication of deer die off this winter. To support our contention that there are adequate numbers of deer on the area, one of the area wardens counted 87 deer from a single location during a two hour period after the season closed, and furthermore, we are currently operating a successful deer trapping operation in that part of the area where the heaviest kill occurred so that other areas may develop herds. It is well to remember that deer, unlike many other animals, do not migrate. To thin the herd and to keep it from starvation and disease, the deer must be hunted.

Now we would like to take this opportunity to invite any of the doubting Thomases on a guided trip over any or all portions of this area to see for themselves just what the deer population picture is and how, tried, and tested, sound game management works. For it is well to remember the old adage "There's none so blind as him who would not see."

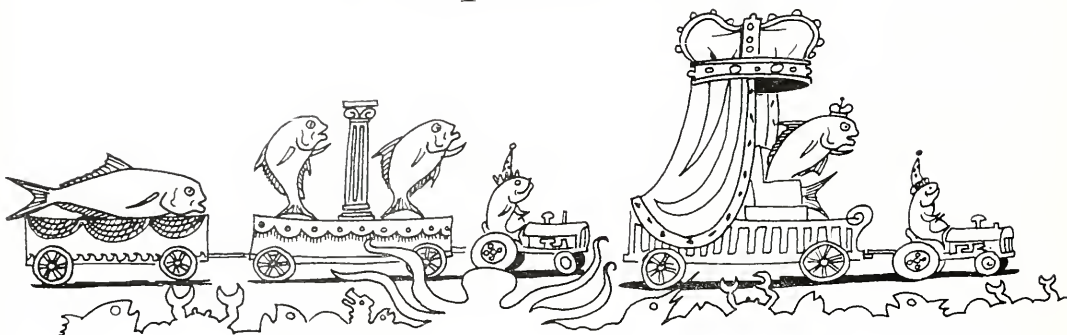
To strike a more pleasant note, we believe that when a man does a good job he should be in line for congratulations and we wish to take this opportunity to commend the biologists and field men of the Fish and Game Division for their untiring and selfless work during the past hunting season on our game management areas and last but not least the men of our Enforcement Division who not only saw that the laws were observed but saw to the safety of the hunters and were on hand to aid, in the case of accidents.

These men, all of them, although the commission pays no overtime, gave up their holidays when they could have been with their families, and made the season a good one for many of the thousands of sportsmen who took advantage of the opportunities offered on our game management areas. Many of these hunters, at least, flushed with success, were convinced that scientific game management pays off. +

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Pompano Parade



McFadden Duffy

THE FAME of the New Orleans Carnival, climaxed on Mardi Gras Day (February 14 this year), is well-known throughout Louisiana and the entire country. Thousands of Louisianians journey to New Orleans to watch the glittering street parades; and particularly to join with hundreds of thousands of other revelers on Mardi Gras Day as they mass in the streets to observe Shrove Tuesday.

Ash Wednesday comes at midnight and the carefree custom is shed with the gay costumes. Carnival means a farewell to flesh and for sportsmen it marks the height of the pompano run along the Louisiana coast. The glittering, torch-lighted night parades and the sparkling day parades give way to another parade. This is sometimes referred to as the pompano parade, and the highly-prized game fish glitter just as brightly in the sunny gulf as they are transferred from platform to platter.

The pompano is a prince among game fish. With its graceful contour, its equally graceful fins and scales that glisten with the brilliancy of polished silver and gold, the pompano is a real aristocrat. This is true on light tackle and on the table.

The name pompano means "grape leaf," and in Western Europe is assigned to a very different fish. This name was first given to our pompano by the Spanish colonists of America. The Cubans call the pompano "palometa." In South Carolina, it is known as the "crevallé" or "cavally," a corruption of "caballa," meaning horse.

La Roche, in his "Voyage to Canada", published in 1542, wrote of "salmons, mullets, sturgeons, surmullets, bass, carps, pimperneaux (pompano), and other fish."

Up until the time that Louisiana's offshore waters became studded with oil drilling platforms, pompano were not considered angler's fish. Economically speaking, enough pompano are not taken to make it an important commercial fish. However, when available, pompano fetch

a fancy price in the markets. From a gourmet's standpoint, the pompano is confessedly the prince of table fish, commanding fabulous prices when available in the fish markets of big cities; and even more fabulous prices when served in the finest restaurants of the country.

A series of events during the past decade has made more pompano a la carte in the homes of Louisiana salt water fishermen than are served in the same fashion in world-famous restaurants. With the start of offshore oil operations in the gulf, the trickle of pompano to Louisiana waters steadily grew until it is now a full scale winter migration—one that reaches a peak about the time of Carnival. Many fishermen, who can not afford financially to pick up the tab for this delectable fish in restaurants, can simply open the freezer and dine in the fashion of gourmets.

Along with the definite migration of pompano in numbers to the Louisiana coast each winter, a lot of hocus-pocus about the ability of sport anglers to catch them was exploded.

Except for present day salt water anglers and a few old-timers who know the score, some fishermen will tell you that fishing for pompano is about as foolish as dangling a lure in front of a nesting bass.



By far the most important pompano to Louisiana salt water anglers is the Carolina pompano. This species ranged along the lower Atlantic and Gulf states, migrating in numbers as far west as the mouth of the Mississippi River. There, pompano take up winter residence around and beneath the oil drilling platforms.

Some Florida commercial fishermen breathe a loud amen to this propaganda because these platinum phantoms bring more per pound than choice steak. That's the sort of thing we kept hearing until the offshore platforms started an eastward migration (one that is characteristic of moving pompano). The fish wintering in Louisiana have steadily increased in number. Techniques for catching pompano on hook and line have been perfected, so the time has come to turn the dial and listen to something else. About the only difference between pompano and other salt water game fish is that they are not as numerous as some species—and they are somewhat unpredictable.

True, pompano are afraid of their own shadows; but once an angler has mastered the technique and learns when, where and how to fish for them; he's assured himself some of the finest salt water fishing available anywhere. Common pompano don't grow large like their kissing cousins, the permit and African pompano. But pound for pound, they are scrappy fish on light tackle. They're harder to catch than the over-touted bone fish; but after you've caught one you've got something worth having.

Probably the most important pompano as far as anglers are concerned is the Carolina pompano (*trachinotus carolinus*). This species has its home along the South Atlantic and Gulf states. It is rare in the West Indies and on the coast of Brazil, and does not occur on the Pacific Coast. On the Atlantic Coast, it ranges as far north as Cape Cod, but is not at all common north of New Jersey. Any occurrence that far north is irregular and uncertain. It seems to be most abundant on the South Atlantic and Gulf Coasts, and is particularly common in Indian River and on the West Coast of Florida. Of all the fishes of Indian River, the pompano is the most valued and brings the best price to fishermen and dealers; and the best table fare to sport anglers.

They are a warm water fish—most abundant about the inlets where they play in and out with the tide. They run in bunches or schools and are easily influenced by changes in temperature, and often leave Indian River during a cold snap.

Very little is definitely known regarding the spawning habits of the pompano. On the East Coast of Florida, they probably spawn in Indian River chiefly in April and May. The food of this fish consists basically of small bi-valve mollusks and small crustaceans. To obtain food, they range extensively around the inlets and in the surf outside. In those waters, they are often seen rooting or digging for food in the sand or mud, their caudal fins sometimes appearing above the water.

The pompano is less abundant about Key West, but a little further north on the Gulf Coast to the mouth of the Mississippi it is a common fish, large quantities being brought to the markets of Tampa and Pensacola. On the westernmost side of the Gulf pompano are uncommon.

About Pensacola, the pompano seems to become a migratory fish, but southward it is probably not so.



Contrary to what was once popular opinion, hefty strings of pompano such as shown here can be taken by coastal anglers during the height of the pompano parade to Louisiana waters each winter.

The pompano reaches a length of about 18 inches and there are records of the species described reaching a weight of seven or eight pounds, though examples of more than two or three pounds are rarely seen.

As a food fish, there is none better than the pompano, either in the fresh waters or the sea. This is practically the unanimous verdict of epicures and all others who have had the pleasure of eating pompano, fresh from the water or quickly cleaned and processed for the freezer. The flesh is firm and rich, and possesses a delicacy of flavor peculiarly pleasing to the palate.

It is the migratory characteristic that becomes noticeable around Pensacola that sends the schools of pompano moving westward around the Gulf during the late fall and winter months resulting in the pompano parade into Louisiana waters.

The behavior of pompano at Indian River is a good indication of what an angler going after these silver, swirling saucers can expect to encounter. In that area, sport fishermen will also encounter the Round Pompano, also known as the Indian River Permit. This species of pompano is reported from Cape Cod to Florida, along the coast. It is common southward, but occurs northward only in the Gulf Stream. It reaches a foot or more in length and averages about three pounds. Like the common pompano, it is a good food-fish. It may be known from the Old Wife and the Pampanito by the absence of dark vertical bars. Scientifically, it is known as (*trachinotus falcatus*) round pompano.

Another family member is the West Indian Round Pompano (*trachinotus rhombodes*). This member of the family that grows larger as you search for them occurs only among the West Indies and southward. It differs from the first round pompano mentioned by obviously higher vertical fins.

Before getting around to the two big brothers of the species, it might be well to mention briefly the Old Wife, Gaff-Topsail Pompano and the Pampanito.

The Old Wife species is found from Virginia



Captain Charles Sebastian, right, a pompano specialist, helps a member of one of his charter parties hold up a fine string of pompano. The Grand Isle charter captains mastered the technique of catching pompano long ago when the platinum, cautious salt water game fish began their migration to Louisiana waters. The pompano, attracted to the Louisiana coast in large numbers, can now be considered regular winter visitors.

to the Caribbean Sea. After tangling with them on tackle and tasting them on the table, the pompano parade into Louisiana's waters has become more exciting than the Carnival parades.

While most folks are concentrating on catching something tossed from the glittering day parades, torch-lighted night parades; many anglers are concentrating on catching something in the coastal waters. While the wheels of the gay floats roll, the reels of fishermen also spin as they fight the platinum and gold rig pompano, as brilliantly colored as the Carnival parades.

Once this gets into a fisherman's blood, he begins to think of following the pompano trail. After the rig-size pompano, he starts to think in terms of permit, a bigger step up the ladder to great fishing.

Florida is generally where the permit pursuit starts. While larger than the several species of plentiful pompano, permit are as cagey and cautious as their smaller cousins. Fishing for them takes much skill and patience, but the reward is great and they beckon with ever-mounting enticement.

From permit, the pompano angler goes abroad in search of the largest member of the family identified to date. This is the African Pompano (*Alectis crinitis*). Like gold nuggets, they are where you find them. They pass under different names in various parts of the world. In the Hawaiian Islands, now one of the 50 states, they call the big one a Ulua. In Caribbean waters, they answer to the title of African pompano.

This reporter took the pompano trail. After catching many common pompano in Louisiana waters, Florida was next on the list of places to fish. Round Pompano and Permit added up to a fishing education that has not ceased.

The biggest thrill and the biggest pompano, necessarily brought to gaff and not netted, was an African Pompano taken in the Yucatan Straits, mid-way between Cuba and Yucatan. It is found at Key West and is common about Puerto Rico and probably other islands in the West Indies. Although it attains a length of a

foot or more, it is not highly regarded as a food-fish.

The pampanito (*trachinotus rhodopus*) is found from the Gulf of California, southward to Panama. It is very common on sandy shores and reaches a length of two feet, but is not much valued as a food-fish.

Folks recall the old saying that printer's ink gets in the blood. The same can well be said of

(Continued on Page 23)



The ambitions of pompano fishermen generally graduate from the round pompano and the Carolina pompano to the larger cousin called the permit. The final quest is for the relatively rare huge African pompano. The one shown here was caught by the author in the Yucatan channel and tipped the scales at an even 50 pounds.



State officials have freezing weather to view control gate

Officials Inspect Rockefeller Refuge

A GROUP OF STATE and parish officials, and Louisiana Wild Life and Fisheries Commission members and personnel gathered at the Rockefeller Wildlife Refuge and Game preserve January 27 for a formal inspection of 17 projects, costing \$1.7 million.

The inspection tour and ceremonies pertaining to dedication of the \$322,000 East Headquarters water control structure were sponsored jointly by the Louisiana Wild Life and Fisheries Commission through its Director, Mr. L. D. Young, Jr., and by Mr. Claude Kirkpatrick, Director of the Louisiana Department of Public Works.

The multiple purpose East End structure is a combination boat passage and water control facility. It was installed squarely across the Old Humble Canal that formerly connected the Gulf of Mexico with the heart of the Refuge and the Great Mermentau Basin, from which many in rice growing areas of southwest Louisiana derive fresh water. Hydraulically operated the 40-foot wide steel sector gates are designed to prevent salt water intrusion, aid local drainage, and at the same time, permit unrestricted movement of refuge boats and barges.

Before this key structure was erected, an earthen dike prevented salt water from flooding in during low water periods, but blocked drainage and movements of boats. To open the canal for traffic or drainage the dirt fill had to be frequently cut or moved aside by means of Commission owned draglines. The new central structure will remedy this situation and solve water management problems once and for all.

The gates are 15-feet high, wedge-shaped steel structures especially designed and built for this

project. The trough-like central structure, in which the gates are recessed, is 40-feet wide and of heavily reinforced concrete.

Poor soil foundation conditions in the area necessitated making the unit self-contained. Four-and-one-half feet thick reinforced concrete slabs underlie most of the upper structure. Other base slabs are two-and-one-half feet thick. Sidewalls are two feet thick. A total of 971 cubic yards of concrete was used in the construction, reinforced by 111,455 pounds of steel. Two hundred timber piles were driven before construction began. Contract for the project was let on May 8, 1959.

The structure was designed and the work was supervised by the Department of Public Works. Funds for the project were provided by the Louisiana Wild Life and Fisheries Commission as part of its overall program to improve the important refuge.

The East Headquarters structure is the key to



One the many water control structures to keep an even level of water in the marshes at Rockefeller Wildlife Refuge.

an intricate system of 16 water control projects designed and built by the Department of Public Works for the Wild Life and Fisheries Commission in the Rockefeller Refuge between 1954 and 1961. Eleven lakes, totaling 38,000 acres have been constructed in the Refuge, 20,000 acres of which have just been encircled by levees. Tide gate structures have been built at the intersection of Bertrand's Canal and Headquarters Canal, and near the mouth of Rollover Bayou. These works not only regulate salt water but control water conditions in such a manner to produce a maximum quantity of desirable marsh vegetation. Other major water control structures will be built at Big Constance, Little Constance, and Dyson Bayous during 1961 and one in Rollover Bayou's West Fork in 1962.

Richard Yancey, Assistant Director of the Louisiana Wild Life and Fisheries Commission, opened the meeting by tracing briefly the background of the Rockefeller Wildlife Refuge. The 83,000-acre tract was donated to the State of Louisiana on September 28, 1920. The area is one of the major waterfowl wintering areas in the Mississippi Flyway, and is now being described by such distinguished wildlife workers as Dr. Leslie Glasgow of Louisiana State University as one of the finest migratory waterfowl refuges in the world.

The deed of donation, under which the Rockefeller Wildlife Refuge was received by the State from the Rockefeller Foundation, provides that the Refuge area be permanently dedicated to the preservation of all forms of marsh wildlife.

For a number of years, according to Yancey, funds were not available to carry out the necessary projects to prevent salt water intrusion and bring the refuge up to its full carrying capacity for wildlife of all sorts.

"Revenue from mineral operations which started in 1952 began to provide the necessary funds for projects on the refuge, and the deed of donation specified that such revenues would first be used to benefit wildlife on the area", Yancey said. "Before 1957 approximately 18,000 acres of marshes had been improved for wildlife, however, this work received a severe set-back on June 27, 1957, during hurricane Audrey. Many of the levees washed out and extensive restoration work was necessary."

It was through close cooperation of the Louisiana Department of Public Works and the Louisiana Wild Life and Fisheries Commission that work was completed on the network of levees and water control structures, including the big East Headquarters gated-structure.

"This and the four other major structures, now planned for, will give us control of nearly 50,000 acres of both fresh water and salt water marshes by 1963", he said.

Yancey told the state and parish officials during the inspection that the East End water control structure was the largest single project completed to date and that no other individual job of this size will be necessary in the final



Inspection party tours control structure.

completion of all improvement work on the Refuge.

Thurman Morgan, District Engineer for the Department of Public Works, explained the engineering facets of the work being done on Rockefeller. In particular, he described the manner in which the impoundments could be drained and reflooded, or water conditions stabilized in the marshes.

Yancey further elaborated that the objective in all of this work was to produce maximum quantities of food and good habitat conditions for waterfowl, fur bearing animals, alligators, and other forms of marsh wildlife. Also that the management work was based upon the findings of research by biologists, geologists, and other employees of the Commission and cooperating agencies.

During the general discussion of the Rockefeller projects, and following a showing of color slides depicting projects completed or underway, and various forms of wildlife, Yancey cited the results of work already accomplished.

"During the last eight years ducks wintering on the Refuge have increased in number from 100,000 to slightly over 600,000", he said. "Most of these move off the refuge almost daily and this has been a boon to duck hunting in the famous Grand Chenier-Pecan Island area".

"In addition to this vast duck population, the Rockefeller Wildlife Refuge winters 35,000 Blue and Snow Geese, and boasts the greatest population of alligators to be found anywhere due to the fine protection provided by Refuge Manager Ned Crain, Eugene Broussard, and other Commission personnel at Rockefeller", Yancey said.

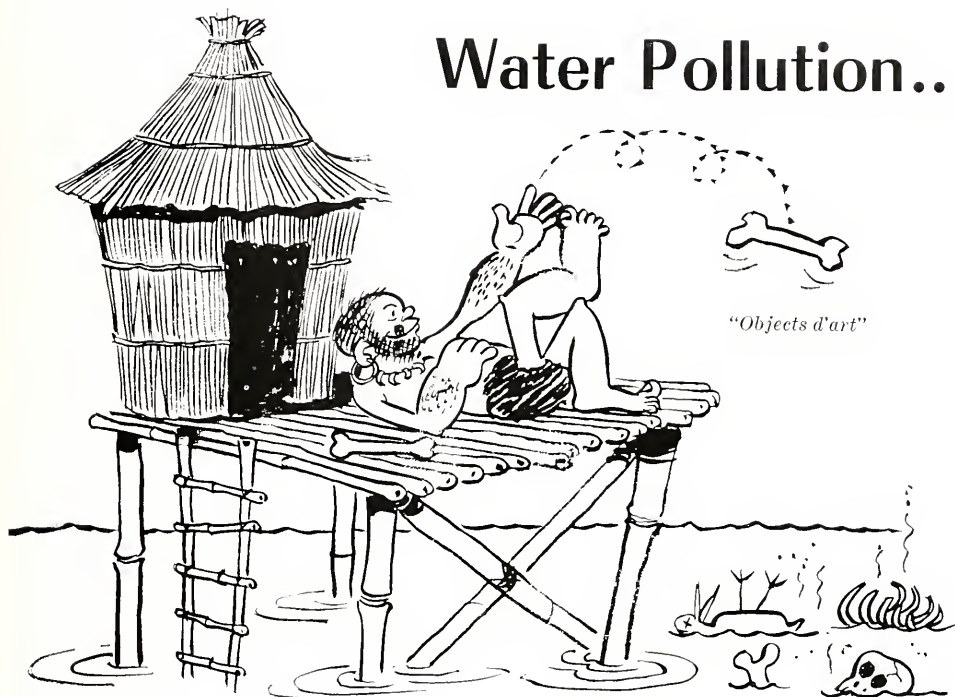
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Louisiana Game Agents Rated Country's Best

During the past two years, game agents of the Law Enforcement division of the commission have made almost three thousand arrests for violations of the state's game laws. A tribute to the training of the personnel is the fact that in a majority of these arrests there have been convictions for violators.

This division has been mainly responsible for the comeback of the state's shrimp crop through the rigid enforcement of closed seasons recommended by the commission's biologists and made law by the legislature. By word of the division is "A law is only good if you can enforce it."

Water Pollution...



...in the Past and in the Sixties

Kenneth E. Biglane

THE CONTAMINATION OF WATER by man's activities has been a problem as old as man himself.

The widespread sufferings of the human race caused by the defilement of his water supplies is recounted in every history book and it is doubtful that the historians recognized that along with the summation of all of the wars, all of the plagues, all of the events which were recorded to plot civilization, from the Dark Ages to the present, a story of water pollution was being depicted just about as detailed as if a trained observer were on the spot. Man's habit of throwing refuse out of his dwelling to be digested by the world has provided archaeologists with many "objects d'art" on which to base the development of civilization.

The remains of Neolithic villages in Switzerland, Italy, and Denmark showed them to be built on poles driven into the beds of lakes or ponds. These "dawn of civilization villages" were unearthed by the discovery of shell heaps, kitchen middens, and other trash which was merely tossed out of the openings of the crude twig huts. Certainly these Lake Dwellers must have obtained

their drinking water from this same area of disposal. While it would only be of academic interest to know the prevalence of waterborne diseases among the inhabitants, it is doubtful that the incidents of these maladies were much higher then than now. Man's practice of refuse disposal into his water supply has not changed very much, just refined.

The mysteries of water were incorporated into the philosophies of the ancient Greeks. Thales, a displaced Phoenician and the pioneer of Greek natural philosophy, taught that water was the cause of all things. Later thinkers shifted to air (Anaximenes), then fire (Pythagoras), until finally Empedocles assumed all things arose from fire, air, water and earth. Heracleitus recognized that "fire was the soul of man" and that "diseases arise mostly through water." A temperate man, he also made the observation that "the driest soul is the wisest."

The famous medical pioneer, Hypocrates, gave brilliant observations on climatical and geophysical conditions on mankind in his main treatise "Airs, Waters, and Places".

History tells us that the builders of the Roman Empire constructed water works for domestic supplies and sewage disposal systems. History



also tells us that the collapse of this great empire was probably hastened by the diseases and plagues which swept the populace who had carelessly allowed these sanitary systems to deteriorate.

Possibly because water is so commonplace, familiarity has bred neglect. Popular indifference toward safe and clean water prevailed well into the 19th Century. Epidemics of waterborne diseases such as dysentery, typhoid fever, cholera, and parasitic infections were wheeled through Europe, Asia, and North America by the vehicle of water. These killers made no distinction between the rich or the poor. King Louis VIII of France, Charles X of Sweden, Prince Albert of England and Louis Pasteur's two daughters are said to have succumbed to waterborne diseases.

Aside from the silting of rivers from drainage arising from unwise farming practices, a new way to degrade water appeared on the horizon during the period known as the Industrial Revolution. Up to this point we have been discussing water contamination from a domestic sewage point of view; that is, refuse and excreta originating from man's domicile or home. Beginning with the Industrial Revolution and continuing to the present, industrial wastes from manufactured or refined products have created additional loads for the world to bear—particularly the world of water. Whitney's cotton gin, the stocking frame of the Lombe Brothers, Hargreaves' spinning jenny, improved methods of dyeing and the discovery of the bleaching properties of chlorine ushered in the textile industries with their great volume of wastes. The art of making paper has been known for over 1,800 years but it was not until mid 19th Century that man applied his full techniques of chemistry and machinery to mass produce this product. At the turn of the century there were over 800 pulp and paper mills in the United States, each using water and discharging wastes in tremendous volumes. In 1810, the pounds of paper consumed per capita was only one; by 1947, it had risen to 344.

The chemical industry burst forward with the utilization of the Frasch process for mining sulphur. During the Civil War, an entire year's production of sulphur amounted to only 40,000 tons; that quantity is now the production for about one

day. Sulfuric acid, the man-of-all-work was ready to go into the thousands of chemical processes, most of which require water and have a waste discharge.

The mass production of hydrochloric acid was discovered in an ironic manner. In the course of the manufacture of soda ash by the old LeBlanc process there was discharged into the atmosphere a steady stream of hydrogen chloride. On humid days, the neighborhood of such a plant was shrouded in a fog. Because of this air pollution, the English Parliament passed the Alkali Act in 1863 which forbade the discharge of such concentrated gases. It became necessary for manufacturers to erect absorbing towers, in which the gas was absorbed in water. The resulting solution was the first commercial hydrochloric acid and is probably the first example of a waste product which was saved and changed into a useful one.

What man discovered and learned to mass produce in the 19th Century, he put to furious use in the 20th Century.

Large scale metal production and the utilization of Pasteur's food preservation techniques boomed the canning industry and more waste discharges.

Twentieth Century U.S.A. was not yet a decade old when oil—black gold—was being pumped from the ground in ever increasing volumes. Oil refineries immediately appeared on the scene, each using copious quantities of water for cooling, condensing, and process.

Without further citations, it should be obvious that the United States in the 19th and early 20th Centuries was directing almost all of its entire civilized activities towards the production of finished goods and refined products. For all of his refinements, however, man had not much improved on the Neolithican method of waste disposal and all of his "objects d'art", domestic and industrial, were directed into the nearest waterway for future archaeologists to ponder.

Danger was ahead for the polluters, however, for in 1888 the Congress passed a law prohibiting the discharge of refuse in the New York Harbor. In 1899, Congress broadened its water pollution law to prohibit the discharge of refuse from ships and manufacturing establishments into navigable waters of the United States. It exempted liquid refuse flowing from streets and sewage lines, however. The Oil Pollution Act of 1924 was passed but referred only to shipping.

Prior to 1924 several states had passed laws for the protection of public water supplies and public health, but it was not until the early 30's that the hue and cry against industrial polluters brought torrents of regulations, rules, etc., into state legislature hoppers. It was at this time the tactics of industrial lobbying against all anti-pollution bills became an exact science. Some of these tactics are still used today in varying forms, but entirely recognizable.

In one state an anti-pollution bill was opposed on the ground that pollution was definitely a federal and not a state matter. Just a few years

later this same group opposed federal legislation on the ground that it was an invasion of state rights. At about the same time, in a meeting of industrial representatives, a statement was made that "in a few years there would be no water pollution problems." Other arguments and reasons were advanced by industry, but always in opposition to whatever legislation was proposed unless it was regarded as harmless. In effect, water pollution became the subject of what could be regarded only as a controversy, with the general public, various sportsmen's clubs and commercial fishermen, nature, health, and similar associations on one side, and a large part of industry on the other.

The position of industry was set out in bolder relief between 1932 and 1942, for during this decade many sewage treatment plants were installed and a great deal of pollution of surface waters by municipal sewage was eliminated. As a result, pollution by industrial wastes became as obvious as the dead fish in a stream.

Immediately after World War II, a majority of the States, and the Federal Government, revised, strengthened, or implemented many anti-pollution laws. However, the majority of these laws contain such vague terminology, complicated enforcement proceedings, and a tendency for broad interpretation so as to make most of them unenforceable by a water authority and, therefore, innocuous to industry.

Since 1956, the tempo of water pollution enforcement and abatement has been stepped up considerably. Public Law 660, passed by the 84th Congress, contained three important considerations. First, it provided for matching funds to bolster each state's water quality organization. Much needed equipment and valuable technical personnel were secured as a result of this section. Next, a provision to provide grants to municipalities to construct sewage treatment plants has resulted in a sharp national increase of these much needed facilities. Finally, stronger interstate pollution laws led to enforcement actions by the Public Health Service and began to clear streams that formed state boundaries or flowed in a polluted condition from one state to another. This latter provision has prompted many states to strengthen their entire water quality program so that they could better handle these problems without having to knuckle down under federal enforcement actions.

Louisiana has materially benefited from the passage of this very important and highly successful Act of Congress. The state has received and utilized monies for bolstering the activities of the Division of Water Pollution Control and the Louisiana Stream Control Commission and for aiding municipalities in constructing sewage treatment plants. The first interstate enforcement action occurred between the States of Louisiana and Arkansas and led to the clearing up of Arkansas oil field brines from the Corney-D'Arbonne Drainage Basin.

Most authorities agree that those deeds accomplished in the water pollution control field

during the 1960's will have far reaching effects on the health and welfare of our country for the next twenty years. Because these are critical times and because water pollution is such a critical reality, it may well be that what we do or fail to do in the next ten years will determine whether or not the United States starts the 21st Century as the world's most powerful nation. A nation should do for her natural resources what her resources have done for her. Let not any summation contain the paraphrase, "E tu pollute". *

Rockefeller Refuge Flyway Group Host

REPRESENTATIVES of the states in the Mississippi flyway, representatives of the U. S. Fish and Wildlife service, along with observers from Canada, participated in the spring meeting of the technical section of the Mississippi Flyway Council which was held at the Rockefeller Wildlife Refuge February 14-16.

Announcement that the Mississippi Flyway Council held its first meeting in Louisiana was made by Richard Yancey, assistant director of the Louisiana Wild Life and Fisheries Commission.

States in the Mississippi Flyway, in addition to Louisiana, include Alabama, Arkansas, Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Ohio, Tennessee and Wisconsin.

The first day's schedule called for routine reports and four special reports by members of the flyway's technical section committee. They included a report on Canada geese by Ted Shanks; a second report on wood ducks by Morton M. Smith; a discussion of Canadian crop depredations by Doug Stephens; and a report on major migration waves by Frank Bellrose.

Dr. Leslie Glasgow, Louisiana State University, gave a report that afternoon on the seasonal availability of duck foods in Louisiana.

Special reports Tuesday afternoon were highlighted by a general orientation discussion of the Louisiana coastal marshes by Yancey. Public hunting systems on state public hunting areas was discussed by Smith and Allan Ensminger. Bob Chabreck and Peter Petoskey discussed waterfowl diseases and parasites.

Wednesday's business sessions consisted of discussions of goose production measurements by family group counts, conducted by John Lynch, U. S. Fish and Wildlife service; Detroit River pollution problems by Peter Petoskey; the status of banding record and future waterfowl research problems at Patuxent by John Buckley; cooperative waterfowl problems by Al Geis; waterfowl inventories, by Ross Hanson; bias in hunter reports in Illinois, Wisconsin and Missouri by Earl Bednarik, Dick Hunt and Dick Vaughn, respectively. Al Geis discussed mallard problems in the Mississippi flyway; and there was also a discussion of canvasback and redhead ducks. *

CONSERVATION OF WILDLIFE RESOURCES

(Editor's Note) We take pleasure in printing the winning essay in the third annual wildlife essay contest, sponsored by the Louisiana Fur and Wildlife Festival. Entitled "Wildlife Conservation", the essay was written by Miss Ernestine Colligan, 16-year-old daughter of J. L. Colligan, Hackberry, La.



Miss Colligan

I'M SURE EVERYONE has heard the expression that Louisiana is a "Sportsman's Paradise," and today this is true. What lies ahead depends upon how we conserve and replenish the wildlife we have today.

It seems as though our supply of game is constantly dwindling. This could be because of those few hunters who do not follow the rules of the game. They hunt out of season, kill illegal game birds, violate bag limits, and hunt on preserves.

I believe the only way this situation can be handled, other than law enforcement, is for each individual hunter to stop and think for a moment before he violates any of these restrictions, and realize what a waste it is to even have them if they aren't going to be obeyed. What if every hunter took this privilege? In a few years, game animals would be scarce. There would be no such thing as hunting as we know it today.

It could be that some of these hunters do not realize the importance of wildlife conservation, or they may be unfamiliar with hunting rules and regulations.

If this is the case, I think it would be a good idea to have magazines like the LOUISIANA CONSERVATIONIST more widely circulated. This would give hunters a chance to keep up with information concerning different seasons and hunting regulations. For instance, there are many public shooting grounds for hunters who are unable to hunt elsewhere, as the Pass-a-Loutre hunting grounds in Plaquemines parish. It is state-owned and one of the largest in the country. It contains 66,000 acres of marshland established especially for waterfowl hunting. It is open during hunting seasons throughout the year.

I think perhaps the greatest helps to wildlife conservation, in replenishing our supply of game animals, are the wildlife refuges which are located throughout the state.

These refuges are the responsibility of the Wild Life and Fisheries Commission, located in New Orleans. Money from the sale of duck stamps is used to help finance these preserves. After an interview with Mr. K. E. Myers, Game

Warden at the Sabine National Wildlife Refuge, I learned that 2½ million stamps were sold this year.

These preserves are set up primarily for the restoration of game birds in a certain area. The refuges in Cameron parish are maintained for migratory waterfowl. They provide shelter, food, and a place to nest, free of predatory animals.

Fresh water impoundments are stocked with fish for the birds to feed on. The Sabine refuge has one of these impoundments which covers an area of 30,000 acres. During hunting seasons it feeds and rests game birds.

The way things look now, it seems as though the hunter of today believes that rules were made only to be broken, but maybe there is still time to do something about it. What if all hunters recognized this problem and made up their minds to follow the rules of the game, to hunt only during the regular seasons, stay away from the game preserves, shoot their limit, and go home, well satisfied?

We can look forward to this day, when these responsible hunters take over, when limits will be raised, and hunting will be a pleasure not only to the hunter, but to all, because we will know that our wildlife situation is well in hand. +



Banding of migratory waterfowl is another activity carried out by biologists in the effort to find out more about the migratory flight patterns of Louisiana waterfowl and perpetuate the fine sport of waterfowl hunting without endangering the available supply of breeding stock.

TRY BLACK FRANCOLIN HERE IN LOUISIANA

A RESOLUTION TO appropriate, if funds are available, \$12,000 to \$15,000 over a three-year period for the importation of Black Francolins, a game bird from Pakistan, was approved by the Louisiana Wild Life and Fisheries Commission at its regular monthly meeting Tuesday, January 24, in New Orleans.

Plans for the initial shipment to Louisiana this spring of the popular Pakistanian game birds were announced by John D. Newsom, chief of the fish and game division.

Under a tentative schedule set up by the Department of the Interior's Fish and Wildlife Service Bureau of Sport Fisheries and Wildlife, Louisiana will receive approximately 300-400 adult Black Francolins.

Prior to the commission's resolution, Newsom advised the commission that in the search for foreign game species adaptable to the South, several species have been found to date which offer good possibilities.

High on the list of potential imported game birds suited to testing in Louisiana, the Black Francolin weighs about a pound and is ideally suited for the table.

This species is an omnivorous feeder eating grain, grass seeds, mustard, wild legumes and many other wild seeds. It takes many insects throughout the year and does no harm to agricultural crops.

It normally flushes well, but like the pheasant is inclined to run when hunting pressure is great. The male is one of the most showy game birds in Asia.

The birds roost on the ground, according to Newsom, and generally breed once a year usually between April and July. A normal clutch will contain from six to 10 eggs.

Occurring from Cyprus, southern Turkey and Palestine to the eastern border of India, some 3,800 miles, north to the Caspian Sea and the southern foothills of the Himalayas, the Black Francolins are not migratory. Sugar cane and rice fields are excellent cover, along with adjacent weed patches or clumps of sedges or cattails.

The federal bureau of sport fisheries and wildlife is convinced that the Black Francolin is climatically well suited to all parts of Louisiana. The sugar cane and rice-producing areas in Louisiana are ideal trial liberation areas for the species.



Black Francolins, highly-prized game birds from Pakistan, will be imported this spring by the Louisiana Wild Life and Fisheries Commission.

Newsom also advised the commission that trials had been highly recommended.

"Ever since the importation of pheasants into this country," he said, "the search for foreign game birds that would survive and reproduce in the wild below or out of the normal pheasant range has been in progress."

The Black Francolin may prove to be as prolific a game bird in the deep South as the pheasant has proved to be in the states where it has taken, providing excellent hunting and lessening the shooting pressure on native game birds.

During the experimental period, Newsom said that the game birds to be imported would be placed in carefully selected areas and under constant observation.

The commission unanimously agreed that since the hurdles of immigration and importation and releasing had already been cleared, the experiment would start this spring. It could prove a valuable addition to the state's non-migratory game birds. +



Photo by M. Rupert Cutler

Black Francolins, obtained from India, are shown being released by Herman J. Tuttle, District Game Biologist, at Hog Island Refuge in Virginia.



Miss Eleanor Fairman, museum technician, is shown inspecting a wild turkey which is native to Louisiana and the nation's largest game bird. The gobbler is shown in a natural habitat setting.

WILDLIFE

FORMAL OPENING of the Louisiana Wild Life and Fisheries Commission's Wildlife museum, at Commission headquarters, 400 Royal street in New Orleans, will take place on February 27, at 2 p.m., with Governor Jimmie H. Davis, officiating at the ceremonies.

State Superintendent of Education, Shelby M. Jackson, members of the wildlife commission and other state dignitaries will take part in the ceremonies marking the opening of the new museum which has been moved from its old quarters in the Presbytere, on Chartres street.

Meanwhile, Edouard Morgan, curator and Eleanor Fairman, museum technician, who have been integral factors in building the museum over the past quarter of a century; into one of the finest of its kind in the United States, have been occupied over the past two years rejuvenating the many beautiful specimens of Louisiana wild birds, mammals, eggs and reptiles.



Edouard Morgan, left, and Steve Harmon, Chief of the Education and Publicity Division of the Wild Life and Fisheries Commission, are shown inspecting a whooping crane, one of the rarest birds in the world, which will be exhibited in the museum.

Edouard Morgan, Curator of the Louisiana Wild Life and Fisheries Commission wildlife museum, is shown putting the finishing touches on a bald eagle, one of the prized exhibits that is in the museum.



An eagle grouping that is on display in the new Louisiana Wild Life and Fisheries Commission museum in the Commission's main office, 400 Royal Street, New Orleans.

MUSEUM

To be seen in the wildlife exhibit rooms, which is the first wing of the museum to be completed, are the ivory billed woodpecker, now believed to be extinct, and rare birds such as the whooping crane, whistling swan and the sandhill crane and hundreds of other specimens.

After the formal opening of the first wing of the museum, which is located on the first floor salon on the left hand side of the building, plans will go forward for the Gulf Marine Room which will feature the denizens of the Gulf of Mexico, also in their assimilated natural habitats. This exhibit room across the lobby will be 80 feet long and 40 feet wide and models of the dioramas are already on the drawing boards. The museum, which faces Royal street, will be open free of charge and is expected to be one of the state's main tourist attractions besides being a fountain of wildlife education for the many thousands of school children who will visit it each year. +



In many cases, Louisiana's bird life is rapidly becoming extinct. In the new Louisiana Wild Life and Fisheries museum, perfect specimens are being preserved for the benefit of future generations.



Many display cases in the museum contain beautiful exhibits of song birds of Louisiana. Proper identification cards allow visitors to the museum to leave with a better knowledge of birds that can be observed in Louisiana.



The museum curator and his chief technician traveled far and wide to obtain lifelike reproductions of natural foliage in order that the specimens in the museum could be displayed against a true habitat backdrop.

Brilliantly lighted, the new display cases in the Louisiana Wild Life and Fisheries Museum will provide a mecca for school children, tourists and scientific writers and ornithologists.



Letters...

Questions...

Answers...

about

WILDLIFE in LOUISIANA

conducted by Steve Harmon

Dear Editor: Pontchatoula, La.
Congratulations to our Director,
Mr. Young, on his editorial concern-
ing safety with firearms
afield.

What is "conservation?"

There is a vast number of
sportsmen of this era who do
not seem to know the exact defini-
tion of conservation. As individ-
uals it's imperative we all take
part in conservation.

That certain group in the mi-
nority that says "If I don't shoot
them, someone else will," certainly
indicates that under such circum-
stances conservation is definitely
not being observed.

In my opinion, if we as human
beings, are to continue to enjoy
our seasonal outdoor hunting and
fishing, each and everyone who
carries rod, rifle or shotgun had
better observe conservation. The
reason is simple. If we don't think
in terms of sound conservation,
we are going to be sitting out on
the limb instead of our cunning
little bushytail friend.

Think it over, brother, if you
are guilty!

VAN BRECKER

We agree with you in both respects.
Sound conservation by the Louisiana
Wild Life and Fisheries Commission
will be doubly effective if sportsmen
themselves recognize what the Com-
mission is doing to properly manage
and perpetuate the outdoor sports of
hunting and fishing.

There is no doubt that safe prac-
tices afield or afloat are of the at-
most importance, particularly in view
of the growing number of hunters
and fishermen in Louisiana.

This is most certainly true of fire-
arms safety. The following letter may
be of interest to you.

Dear Editor:

Attached is a photograph of a
38-point buck killed by the writer
in Concordia Parish during the



past season. The five and one-half-
year-old deer weighed 170 pounds.
It was killed on Sharp's Planta-
tion. This deer wasn't "toting"
this rack. He was pushing it!

RAYMOND COWAN

This is certainly a fine buck and
we are pleased to receive the picture.
Under the Louisiana Wild Life and
Fisheries game management program,
more fine deer will be taken in the
years to come. The restocking of deer
in suitable areas and proper harvest-
ing of deer in over-populated areas
will certainly result in larger deer
and more trophy racks such as the
one sent in by Raymond Cowan.

Dear Editor: St. Paul, Minn.

Reference is made to our letter
... relative to the nationwide
summary of firearms injuries and
deaths.

We would very much like to
have the records of firearms cas-

ualties from your state, and if
you have such a summary com-
pleted according to the Minnesota
(firearms accident) Summary
Form, to receive it at your earliest
convenience.

We are now compiling the re-
ports from other states which we
hope to have completed in just
a few weeks.

We hope to have it ready for
distribution to the participating
states before the end of Febru-
ary.

ALFRED L. NELSON, Editor
The Conservation Volunteer

The Louisiana Wild Life and Fish-
eries Commission does not keep such
records, although commission person-
nel are familiar with many accidents.
Records of the National Rifle Associ-

ation, 1600 Rhode Island Avenue, N. W., Washington, 6, D. C. published annually, give comprehensive details of all firearms accidents. They are broken down percentage-wise, according to the nature of the accidents (such as climbing fences, cleaning guns, mistaken identity of targets, etc.). The NRA will supply the latest available figures to interested persons or sportsmen's groups. The tabulation of firearms accidents is also broken down into age groups and it is surprising that many of the accidents occur in age groups that should contain "seasoned" hunters.

Dear Editor: Midland, Texas

Can you please furnish me with information concerning spearfishing off your gulf coast. What time of summer can I expect calm winds and where do you think I can find the clearest water?

Please send me copies of any laws concerning spearfishing in Louisiana salt water.

C. L. WOMBLE

The biggest fish taken by underwater spear fishermen are taken by members of skin diving clubs participating in the coastal rodeos. These fishing contests generally take place in July and August, but spearing of salt water fish is practiced throughout the year and in the summer months in particular.

Weather conditions during the summer months are usually favorable to skin divers, although severe squalls sometime serve as temporary deterrence diving operations on occasion.

We are sending you a compilation of Louisiana laws pertaining to wildlife and fisheries, along with the 1960 supplement to those laws.

Dear Editor: Harvey, La.

I have been a resident of Louisiana for 18 years and have been a licensed hunter for three years. I would deeply appreciate being placed upon the mailing list to receive the LOUISIANA CONSERVATIONIST.

Also, I would appreciate some information on hunting grounds or ponds for lease in the Lafitte or Venice area. I would like to erect a camp upon some site.

BOB THOMPSON

We are pleased to add your name to the mailing list for the LOUISIANA CONSERVATIONIST. Meanwhile we are sending you the current issue.

Regarding a pond for hunting and building a camp, we would strongly urge you to visit the two areas in which you are interested to determine if ponds are available for relatively long-term lease. Both areas mentioned in your letter are fine duck shooting ones but it will require visiting them to determine what is available. Unless you are able to lease a pond, with

an option to renew the lease, we would advise against heavy investment in a hunting camp and the necessary equipment.

Although the shooting is over until next fall, the spring and summer months are ideally suited to careful selection of a camp site and, possibly, taking up a lease that has expired.

Dear Editor: Columbia, La.

I am enclosing a photograph of a deer and a bobcat that came from Ward 10 in Caldwell Parish.

This bobcat evidently slipped up on the deer while it was laying down, judging from the signs; and killed the deer by eating into its fore shoulders. Mr. Guyly Grant, Police Jury member of Ward 10, who has a pack of beagle



hounds trained to run cats picked up the trail where this cat had covered the deer with leaves and tree tops. Mr. Grant killed this cat.

You may use the material in the LOUISIANA CONSERVATIONIST if you desire.

G. E. ERSKINE
Sheriff

Thank you for sending the picture. We are always glad to receive this sort of material. Readers of the LOUISIANA CONSERVATIONIST will be interested in knowing that control of predators is still an important factor in game management.

Dear Editor: New Orleans, La.

Here is a photograph of a huge white trout which I brought in to Percy Viosca, Jr., for examination.



It was identified as a true white trout and tipped the scales at 9 1/4 pounds. While the big white trout is not a world's record, it may prove of interest to Louisiana's coastal anglers.

FRANK LEVIGNE

Levigne was using cut bait and fishing in about 80 feet of water at a rig out of Empire. Plenty of fish were being caught, generally two at a time; and all were hefty white trout.

When Levigne had the big trout on one of his hooks, a second and smaller white trout also struck. He had to fight and land both fish at the same time.

The big white trout measured 27 1/2 inches long and Levigne lost little time in bringing it in to Percy Viosca for proper identification. It's being mounted now. The picture will show that Louisiana's run of white trout (weakfish) this fall and winter has been exceptionally large. If properly cleaned and refrigerated promptly, few persons can tell the difference between the white trout and the highly-prized speckled trout.

Dear Editor: Holland, Texas

I would like some books on fish and would like to have the books show different flies and spinners (lures). Can you help me?

CATHY KOPECKY

We are sending you a booklet describing both fresh water and salt water fish found in Louisiana waters. For descriptions of flies and spinners and other lures, we recommend that you visit your nearest fishing tackle store. They can supply you with the names and proper addresses of manufacturers. They will be glad to send you their catalogs. These contain color photographs of all types of artificial lures and recommendations about their use.

The November-December issue of LOUISIANA CONSERVATIONIST contained a photograph of an armadillo which was sent in by George Amara, a chemist residing in New Orleans who is also a free-lance photographer and writer. The fine picture brought so many requests about armadillos from our readers that we are pleased to print his account of finding them in large numbers in Harvey.

Dear Editor: New Orleans, La.

We didn't expect to see from 15 to 20 armadillos in just one afternoon recently when we took a ride over from New Orleans to Harvey, La., just a few miles from New Orleans. Two friends of mine and I saw these curious animals along the edge of the woods at Harvey. They came right out into the broad daylight, although they are supposed to be nocturnal in habits, to accommodate us until we

had taken as many photographs of them as we wanted.

These turtlelike animals were all over the place it seemed. Every few yards we walked would produce one or two of them. Fifteen or so armadillos in just one afternoon is quite an occasion when you consider that for the past 10 years of traveling around the Louisiana countryside you had never seen one before. It became so that seeing so many armadillos in one afternoon was too much and after a while we reached the point where we would stop rushing up to them to obtain photographs, or even stop to get a closer look.

The thing that impressed us most, perhaps, was the utter disregard these animals had for our presence. They would simply go on digging into the ground looking for grub or ants until we approached very close to them—usually to within three or four feet of them. Then they would scurry off at a good clip. Their speed was surprising for so bulky an animal.

One thing these animals didn't do which we half expected them to do was roll up in a ball, as armadillos will do when cornered. Perhaps the reason none of them did so was that they always had the alternative of running off into the woods, which they invariably did.

Another thing that impressed us about these armadillos were their large ears, which to me, gave the animals a strange appearance.

Seeing so many of these armadillos in one day was a real treat. If we had been in Texas, or in South America, we would have expected to see these animals. But to see so many of them right in Harvey, just a stone's throw away from New Orleans itself, came as a complete surprise.

We deeply appreciate your sending both the photograph and a descriptive account of this concentration of armadillos. This is a rare sight in Louisiana, to see so many of them virtually in a colony.

Dear Editor: Jones, La.

Will you kindly mail me the booklet "Birds of Louisiana". In your November issue, I was fascinated by Percy Viosca, Jr.'s, article on poisonous snakes of Louisiana. Particularly so, because we have had a sort of epidemic of coral snakes around Farmerville in Union Parish.

I also enjoyed the article "The Christmas Bough" by McFadden Duffy.

However, your article "Bird of the Month" which featured the Cowbird, by Hannah Yates, was especially enjoyed because my hobby is birds.

MRS. DEBBIE G. NETTLES

Thank you for your letter. We are sending you a booklet about Louisiana Birds. We were also interested to know that coral snakes are being observed in greater numbers in Union Parish. This material should prove of great interest to the Commission's biologists and field workers.

Dear Editor: Ferriday, La.

Attached is a letter from Johnny Fudickar of Ferriday and a picture of a gar he took with his bow and arrow in Fletcher's Lake. Johnny is a member of the Scout troop that I work with in Ferriday.

D. W. WILLS
Game Biologist

District IV Supervisor

"I am enclosing a picture I thought you might print in the



LOUISIANA CONSERVATIONIST. The picture is that of an alligator gar which I shot with my fishing bow and arrow on Fletcher's Lake in Concordia Parish. The gar measured six feet and weighed 130 pounds. The fish was landed after a 45 minute struggle. I am 13 years old and have been fishing with my bow and arrow for the past few years."

Thanks to D. W. Wills and John B. Fudickar, Jr., for reporting this big gar taken with a special "fishing" bow and arrow. The size of the gar is obvious proof why the youth took 45 minutes to land the predatory fish. We always welcome pictures such as this one.

From DAILY IBERIAN, Sept. 8
September 8, 1961

1960 Wildlife Conservation, Outdoor Recreation Award Presented to Jim Ledbetter



Jim Ledbetter

Ledbetter was cited by the President of the Iberia Rod and Gun Club for his accomplishments in conservation and recreation

Also from New Iberia comes word that Theodore Bonin, wildlife agent for the New Iberia area was presented with a plaque by members of the Iberia Rod and Gun Club.

Bonin, enforcement agent for this area of the Louisiana Wild Life and Fisheries Commission, was presented an appreciation plaque by members of the Iberia Rod and Gun Club.

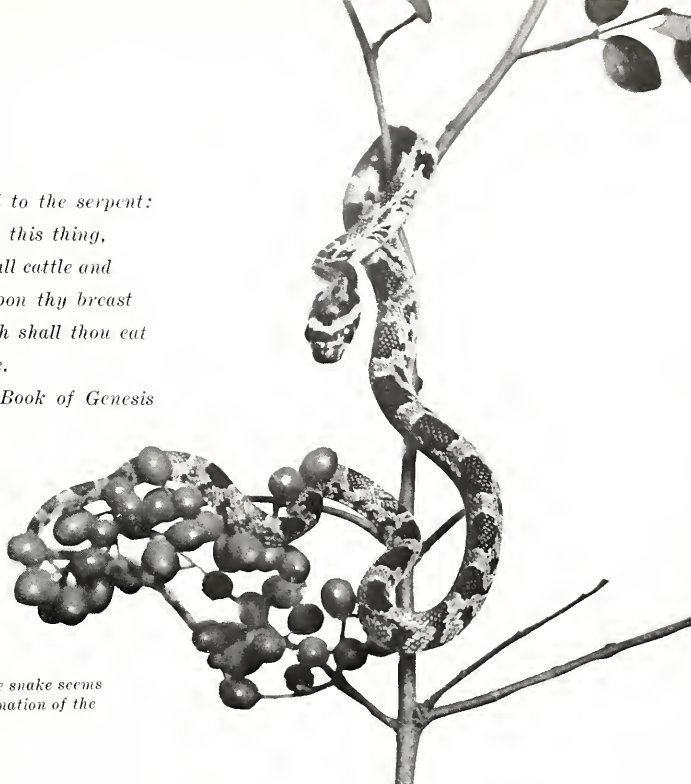
Bonin was cited for his interest in conservation, his many years of service to the Department and for being picked as the outstanding agent for 1960.



Daniel Bodin of the Iberia Rod and Gun Club (left) presenting an Appreciation Plaque to Ted Bonin.

And the Lord God said to the serpent:
Because thou hast done this thing,
thou art cursed among all cattle and
beasts of the earth. Upon thy breast
shalt thou go, and earth shall thou eat
all the days of thy life.

The Book of Genesis



*The harmless pine snake seems
the living reincarnation of the
garden of Eden.*

Harmless Snakes of Louisiana

Percy Viosca, Jr.

OUR HARMLESS snakes are represented by a variety of different types. These range in size from tiny-worm-like animals to large bulky creatures like the *bull snake*, *horn snake*, and *diamond back water snake*. Some kinds are very secretive, such as the various ground snakes, the *scarlet king snake*, and the *rainbow snake*. Others are frequently seen in the open, where they can better scare the wits out of the misinformed. Among the more noticeable snakes in Louisiana are the *speckled king snake*, the *live oak snake*, the *coachwhip*, the racers (several varieties of a single species), the water snakes (seven species), the garter snakes (two species), and the *hognose snake* (one species with blond and brunette individuals).

The *hognose* is better known locally as the *spreading adder*. It is not an adder, however, and although perfectly harmless, it is our most preposterous bluffer. It huffs and it puffs as if it would blow your house down, but when you call its bluff, it will turn over on its back and play possum. It is such a good actor that you would think it was seized with convulsions, then suddenly passed away. If you want to make sure the snake is not really dead, simply turn it right

side up. Then in order to prove to you that it is dead, it will stage another convulsion and turn over on its back once more. This can be continued until you are dead tired and ready to turn over on your own back. The spreading adder is a toad eater and will make a nice pet if you can furnish enough toads to make it happy. But remember that it resembles the *ground rattler*, which does not bluff but really means business.

The *speckled king snake* is recognized by everyone. It is docile towards man but a natural enemy of other snakes. This includes the poisonous kinds, which it will strangle and devour. Widely distributed over the state, the *speckled king snake* is the kind most frequently made into a pet. It has a less well known relative, the *prairie king snake*, which lives in the prairies and prairie-like regions of Louisiana, west of the Mississippi Valley. Another relative, the beautiful *scarlet king snake*, is widely distributed, but much more secretive than the other two kinds of king snakes. The *scarlet king snake* resembles the deadly *coral snake* somewhat, so don't make a fatal mistake. It has been done. The *scarlet king snake* is marked with scarlet saddles, each outlined with narrow black margins. These mark-



The live oak or chicken snake

ings do not form continuous rings around the belly as do the *broad, black, bands* of the *coral snake*.

The "racers" are no doubt so-called because they are frequently seen crossing the road in their usual hurry to get to the other side. Although the racers are found in several varieties throughout the state, these are considered to belong to a single variable species. In the Mississippi Valley, the racer is of a steel blue color and best known as the *blue runner*. Varieties in milk chocolate and buff shades, which have no special names, are found near the coast. In the Florida parishes, there is a velvety black variety which has a striking white chin. This is the well known *black runner* of the southeastern states. In West Louisiana, except near the coast, the racers are brownish to ash-colored, with lighter flecks of more than one shade. This variety, variable in itself, is best known as the *butter-milk racer*. In the eastern corner of North Louisiana, the racer is different again, being almost black, or blue-black, with a few light flecks. This form differs from the *black runner* of the Florida parishes in that its entire underside is light or whitish, not just the throat, so perhaps we should dub this the *black and white racer*.

The *coachwhip* is closely related to the racers. This is in every respect a dryland snake. It is absent from the more humid coastal flats and the Mississippi Valley, but increases in abundance as we go northward on either flank of the



The yellow belly water snake

lowlands. Don't let anyone tell you that the *coachwhip* makes a specialty of chasing man or horse, much less lashing either to a tree and whipping its victim to death. Perhaps the "bad man" of an earlier era could best explain his experience at the whipping post of another county by claiming to have bested a *coachwhip* in battle. True, the *coachwhip*, and the racers too, will fight when cornered, but like the alligator, they prefer to run if they get the chance. Snakes are near-sighted, so if one happens to be running in your direction, maybe it is because it smells a rat.

We have other rat chasers too, which the books call "rat snakes," but these are better known in Louisiana as "chicken snakes." When I was a child, these snakes used to eat rats in our stables, but also fed on chicks and eggs in our hen houses. When a biddy gave a cry of alarm, we could be almost sure a "chicken snake" was nearby; but modern methods of raising chickens seem to have eliminated this problem.

The common, blotched, liver-colored "chicken snake" of the wooded alluvial lands is known locally as the *live oak snake*. In the North Louisiana uplands it is darker in color, showing its relationship to the *pilot black snake*, a northern variety of the same species. In the canebrake country, it shares with the copperhead, the distinction of being called the "rattlesnake pilot." In the pine lands of the Florida Parishes, there is a distinctly different species of the "rat



The slender garter snake



The speckled king snake

snake"—"chicken snake" group. This has the book name "corn snake," but I don't get the corny connection. In Louisiana it is better known as the *pine snake*.

These so-called "rat snakes," "chicken snakes," "pine snakes," or whatever their name, are excellent tree climbers and can climb vertically up a tree by clinging to the irregularities in the bark. On the other hand, one kind, the versatile *live oak snake*, is just as likely to be seen swimming across a river or bayou.

Besides the so-called rat snakes (or chicken snakes) several other kinds of snakes will climb trees and bushes in search of lizards, tree-frogs, birds and rodents. Mocking birds are frequently seen matching their wits against *blue runners* perched high in the brush in search of their hidden fledglings. Thus distracted, the snakes are led away from the young birds.

Besides these large tree climbers, we have one snake which can truly be called a "tree snake" for it specializes in tree climbing, even if mainly in small trees. This is the small, slender, but very handsome, *rough green snake*.

Among our more secretive harmless snakes are species representing all size classes. The largest two are the *horn snake* and the *rainbow snake*. The first is statewide, the latter known only from the parishes bordering the Pearl river. Both live in swamps and damp underground tunnels made by crawfish, congo eels and snakes (including their own kind). They feed almost exclusively on the huge salamanders known as "congo eels" and can swallow a specimen their own weight. Like the king snakes, these large swamp snakes are docile toward human beings, but when they detect the odor of one of these large salamanders, they become ravenous predators until they subdue and swallow their prey. Both kinds are top notch fourflushers. When surprised on an overland foray, which they may take during the mating season or when flushed out of their dens by high water, they will twist and squirm, flashing their bright red undersides, and scaring the wits out of anyone not fully informed of their completely harmless character. No wonder that many an otherwise honest person will, under these circumstances, swear that he has seen a large "stinger" thrust out "wasp like" from the end of its tail.

Supposedly, the horn snake (and the rainbow snake, too) is inclined to form a hoop, roll down a hill, uncoil at the end of its journey and then ram its "stinger" deep into a live oak tree. More than one such self-styled "eye witness" has told me his tall tale about the "hoop snake" and how the leaves of the oak will turn brown and begin to fall within the hour. But don't be afraid of the insignificant horny extremities on the tail ends of these huge snakes. They are not as dangerous as a kitten's toe nail. In fact, these snakes like the warmth of the human body and will cuddle up for hours inside your shirt. Or you can wear them around your neck like a horse collar, where they will remain perfectly



The banded water snake

contented, until you choose to remove them.

A number of smaller, more or less secretive, harmless snakes are found in Louisiana. These burrow into the ground, or may be found within or under accumulations of forest litter, such as dead leaves, bark, rotting stumps and fallen trees. Among them are several kinds which can be lumped together under such general terms as "ground snakes," "brown snakes," "worm snakes," and "ringneck snakes." The *scarlet snake*, another mimic of the poisonous *coral snake*, is in this group. All of the harmless snakes, except those noted below, are egg-laying species.

It is almost impossible to make an excursion into the Louisiana lowlands or along the water courses of its uplands without seeing some of our seven kinds of water snakes. The *diamond back water snake* is our largest and heaviest species and may reach a length of six feet or more. It may be falsely called a "water rattler," or in some areas a "bull snake," but either is a lot of bull. Next in size is the *yellowbelly water snake*. Still smaller are five additional species of banded and striped water snakes. Most of these can tolerate slightly brackish water, but out in the true salt marshes near the Gulf of Mexico, the one that can stand the most salt is a striped species, the *salt marsh snake*.

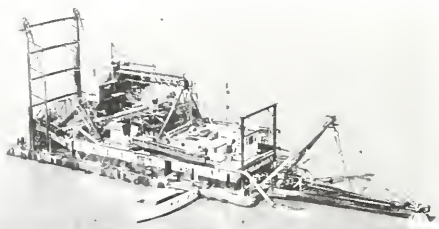
Completing our list of harmless snakes are two species of garter snakes, sometimes called ribbon snakes. Both are very fond of small frogs and perhaps prevent them from inheriting the earth. The *slender garter snake* is partial to the lowlands, whereas the *stout garter snake* is more plentiful in higher regions. The garter snakes are closely related to the water snakes, and like them, give birth to living young.

This is by no means the last word on snake

(Continued on Page 23)



The black phase of the hog snake



Lyle S. St. Amant



Dr. St. Amant

Wildlife Requires... COOPERATION

THE PROBLEMS INVOLVED and the work being done in the control and wise utilization of both water and wildlife resources in the United States are tremendous.

Along Louisiana's 5,000,000 acres of unique marshy coast, water and wildlife became so closely intermingled that the problems, from the wildlife and fisheries point of view, become common ones. On the other hand, since water is a more basic natural resource it is possible for those specialists, working with the control and conservation of water to carry out single or multiple purpose water control or navigation projects without concerning themselves with wildlife problems. From a practical and economic (project cost) stand-point the aims of water control projects can best be accomplished when project problems are pared to a minimum. In most cases this means that the wildlife and fisheries problems associated with and resulting from water control and navigation projects are at best considered minor parts of most projects and in some instances are not considered a part of the project at all.

It is obvious, however, that with each new water control or navigation project the problems of the wildlife and fisheries specialist are multiplied. This is especially true along Louisiana's coast where the fabulous wildlife and fisheries production is fundamentally a result of water, flood cycles, and the geological wanderings of the Mississippi River delta. It is my objective today to attempt to present briefly the picture of the importance of water in wildlife and fisheries ecology and to discuss specifically its relationship to one animal, the oyster. This species was selected because of its sessile nature, because more is known about its biology and ecology, and because it would be impossible to discuss all of the problems of all coastal species.

LOUISIANA COAST, ITS HISTORY AND NATURE

Louisiana's coast consisting of some 5 million acres of marsh and water and the vast active delta of the Mississippi River, is unique and fabulous. Its production of mineral resources is world renowned and likewise its production of wildlife and fish is discussed with a degree of awe and amazement by all wildlife and fishery

experts who know about it and come in contact with the area.

To attempt to assess its value in detail would involve a speech of considerable length, but for the moment let's consider these facts:

1. In peak years Louisiana's coast has produced more fur than the other 47 states and Alaska combined (These figures for 1946 before the addition of the 49th and 50th states).
2. Some 4 to 5 million water fowl winter in the area which is the greater portion of the Mississippi flyway population.
3. Louisiana's shrimp production, though cyclic, is usually the highest in the United States.
4. Its oyster production of some 3 million bushels annually ranks third in the United States and probably can be developed to the point where it would rank first with proper water control and manipulation.
5. The menhaden industry is a new and expanding fishery.
6. Other commercial fisheries such as food fishes, crabs and trash fish are yet in an undeveloped or primary state. The potential of these alone signifies an industry of some magnitude.
7. The recreational and sport fishing is just becoming known and all indications are that it is approaching that of Florida, a state that derives much of its income from tourists and recreation.

Dollar-wise it's difficult to put a true figure to the annual wildlife, fishery and recreational value of this area. Statistical studies indicate that the area is principally responsible for a 100 million dollar annual business in Louisiana.

Why is Louisiana's coastal and estuarine area so productive? The answer lies in a study of its geological history and the wanderings of the delta of the mighty Mississippi. Fundamentally the answer is water, fresh water meeting the ocean, the depositing of silt loads, the building and subsidence of land. The active and old deltas of the Mississippi with their multitude of distributaries created a coastal belt of marsh and water 30 to 40 miles wide and extending across the bottom of the State. The unusually great depth from north to

south of this unstable, and changing coast is the real secret to its production. The gradual transition from fresh water to true sea water that occurs from 15 to 30 miles offshore results in broad zones of relatively stable salinities of different ranges, each with its own special ecological pattern of plants and animals. Because so many different ecological zones exist, each one made up of thousands of acres, maximum opportunities exist for the development of wildlife and fish populations and the food needed to sustain them.

On the other hand, the very nature of the development of our coast and estuary makes it unstable. The natural topography and drainage pattern is one of meandering distributaries opening into embayments, which are partially closed to the sea by barrier islands.

The movement of tidal currents of salt water through passes between the islands into the bays where it mixes with fresh waters draining from the north creates the various salinity regimes so vital to this area. Even before man entered the picture the annual flood cycles, the formation of natural levees, silt deposition, compaction and subsidence, all played a part in constantly changing the area. Ecological zones were shifted, some animals died or were forced out by the changes to have new ones take their places. In many instances animal populations were forced to shift positions. Geologically these changes were rapid but biologically they were slow enough for most animals to adapt to the new conditions.

With the advent of man the changes became more rapid, often too rapid for the animals to adapt while in other cases large areas have been stabilized and reduced to highly saline environments that are not conducive to maximum production of past years. How did this happen? Man, in order to live a safer, more healthful, more civilized and industrious life, has been forced to control the vast volumes of fresh water pouring into Louisiana from the drainage basin to the north. These control measures followed a pattern of first, levees—second, drainage, then, as populations and industry expanded, land reclamation and navigation channels.

The basic effect of flood control and the building of levees on the marshes of Louisiana was unavoid-

able in the light of man's needs for flood protection but nevertheless virtually prevented the annual flooding cycles of the coast. This stopped the creation of new areas and periodic regeneration of existing areas by fertile, mineral bearing waters. The coastal areas then began a period of stabilization in a direction toward more saline conditions. Land areas sank, shores eroded, salt water intruded and many areas became less productive. Some of these changes have been very gradual but nevertheless obvious as will be illustrated with the oyster shortly. In more recent years navigation projects, and industrial use of the marsh has compounded the problems and in some instances have radically changed salinities, caused salt water intrusion, and shunted or changed current directions and velocities. All of which can and do result in rapid ecological changes that may decimate production of fixed animals like oysters that cannot move to new areas.

The oyster lends itself admirably to a study of coastal changes. This animal is one which is sessile in nature and does not move from the time that the larva sets on the bottom until its eventual death or harvest. Basically the oyster is an estuarine animal and although it will tolerate salinity ranges from eight parts per thousand to 25 or even 30 parts per thousand, it is generally associated with estuaries where salinities are lower than sea water. In coastal areas away from Louisiana, oysters are confined to the vicinity of river mouths but in Louisiana because of the vast low and brackish salinity regimes associated with our coast, oyster-producing areas have developed over wide expanses. The principal oyster areas straddle the Mississippi River lying both to the east and to the west. Although oysters are extremely tolerant to salinity changes in the brackish regions,

certain salinities affect oysters in different ways. While oysters grow best in salinities from 15 to 25 parts per thousand, there are considerable problems in this area from predation and disease. Although oysters will readily breed in highly saline areas the young will not likely survive to maturity. In areas of lower salinities ranging from 8 to 15 parts per thousand oysters breed readily, have less trouble with disease, and have few if any predation problems. In such areas the young of the oyster survive well but grow slowly. Because of this, oysters in low salinities cannot be grown to maximum size and quality.

The method of harvesting and planting oysters in all of the major oyster-producing areas in the United States is based upon these basic peculiarities of the oyster's response to salinity ranges. In general, seed oysters, or young oysters are obtained in quantities from areas of relatively low salinity, where predation and diseases do not decimate them and are transplanted to regions of higher salinities where they grow and fatten rapidly. Depending upon water temperature transplanted oysters may then be harvested in as little as six months in Louisiana or after two to three years in colder climates.

Close examination reveals that Louisiana's principal seed areas lie to the east of the river where in past years incomplete levee systems on the Mississippi and fresh water moving down from the Pearl River and northern regions have maintained relatively low salinities. In this area vast natural reefs of seed oysters have developed.

The Louisiana seed grounds were, and still are, probably the finest and most productive in the United States. With the advent of complete leveeing of the lower Mississippi and certain flood control practices in areas to the north of this region, the volume of

fresh water entering the seed area in recent years has become less. With this decrease of fresh water, salinities have increased to the extent that large portions of the seed ground have become non-productive, riddled with predators and with disease. Even with such changes, the seed grounds in Louisiana with proper management still can produce an adequate supply of seed provided there is no further decimation of the area. The normal practice is to harvest the seed on the eastern side of the Mississippi and to move them by boat to the western side in the vicinity of Barataria Bay where they are planted on private beds in areas of relatively high salinity. Here they grow rapidly and fatten in the short period from September of one year to the spring of the following at which time they are harvested and moved to the market.

It should be kept in mind that oysters like any other animal, to fatten properly and to be of high quality must receive adequate supply of proper food. In this case the food is a small microscopic plant or animal known as plankton which is transported by currents over the beds. It becomes obvious that should anything divert such currents or in any way change salinities or ecological factors which control the food supply of oyster beds that the oysters will suffer from starvation or by changes in their actual environment. Since the factors controlling oyster growth are critical, proper location of oyster beds is of extreme importance.

Although there are thousands of acres of water bottoms on the Louisiana coast, only 50,000 or more acres are suitable for the best types of oyster production. Oystermen constantly seek out new areas which they can lease from the state for private beds. Such oyster beds require a peculiar type of bottom having a proper density and firmness that will support



Louisiana Marshland; lacelike land, water, wildlife and natural resources worth billions of dollars.

oysters. They should be in areas which are swept by current that carry adequate supply of food. In the event that the bottom changes because of silting or should the currents change because of diversion or any other manipulation of water in the area an oyster lease can immediately become non-productive or lessened in production. It is evident, then, that changes in our coastal area resulting from navigation, flood control, or water control projects, are constantly causing problems in the oyster areas. These problems take on numerous aspects but basically they fall into two categories; those having direct effects on oyster leases and those having indirect effects.

The direct effects of man-made changes on oyster areas are obvious and easily detected. These include the actual destruction of beds by dredges, the deposition of spoil on oyster areas, and the complete isolation of producing beds by levees. In such instances there is no method to prevent damage and it resolves itself into a question of which is more important to the community, the production of oysters or the particular project in mind. In most cases large projects because of their size and effect on the economy of the community take precedent over the oysters and the only compensation falls into the category of purchasing the right of way for the proposed projects. In these instances while the oysterman may receive just compensation for his loss, the loss to the State as a whole in acreage of oyster production is permanent. It might be suspected by the casual observer that the projects would not reduce the total acreage significantly, however, the vast magnitude of public and private projects, particularly the latter having to do with mineral exploration and mining, has in recent years greatly reduced the actual acreage of oyster producing areas.

The direct effects are of a much more subtle nature. In such cases spoil deposition or canaling considerable distances from oyster-producing areas may have a drastic effect upon their ecology. In such cases usually waters are diverted, salinities are changed, currents are lessened or speeded up, and normal silt loads may be deposited as current velocities are decreased. This type of ecological change is the real problem facing the marine fisheries industry on the coast of Louisiana. Fisheries specialists and ecologists hesitate to predict the outcome of the numerous projects on the area as a whole. Certainly, from past observations, detrimental changes have occurred and it is believed that should such changes continue the general production of the area will decline in future years.

It is obvious with the expansion of populations, the advancement of civilization, the needs of the people and industry for many of the proposed projects that such projects will very likely continue and possibly even increase in future years. On the other hand, if we consider that the fishery production, and recreational aspects of Louisiana's coastal marsh is an industry valued at one hundred million dollars annually, and that such an industry is also vital to the population as a whole as a source of food and recreation, then some attempt must be made to prevent damage to

this resource and if possible to increase and enhance its production. Control of the various water and wildlife problems which exist on the Louisiana coast falls into two general categories. First, certain preventive measures can be and must be integrated into all proposed water projects. Secondly, projects should be and must be devised and instigated which are designed solely for enhancing or increasing the production of fish and wildlife in our coastal areas. Prevention of damage is possible in many instances and in others it can be lessened. The bulk of the work of the Wild Life and Fisheries Commission has to do with aiding the engineers and other interested parties operating water control projects in devising methods to prevent or mitigate damages to a maximum degree. It is obvious that many of the preventive measures advocated will increase the cost of such projects; however, it is believed that such increase costs are justified and certainly if they are integrated properly can even create benefits for the area without excessively increasing the original cost. Methods which are now being used in order to prevent excessive damages may be outlined as follows:

1. Channel alignment of project location can be of extreme importance and should be studied well in advance of the letting of contracts or final bids.
2. In the actual project area the disposition of spoil and whether or not it is to be handled by bucket dredges or suction dredges, plays an extremely important part in preventing damage either directly or indirectly to surrounding marsh areas.
3. In some instances proper diversion of waters which can be added to the project without significant increase in cost will greatly enhance and increase fishery production in the general locality.

The Louisiana Wild Life and Fisheries Commission has in the past and will continue in the future to cooperate to the fullest on all projects in an attempt to prevent losses and to gain maximum benefits when such projects are carried out. Two prime examples of such cooperation now exist in our coastal areas. In one instance I have reference to the deep water channel being dredged to the east of the river from New Orleans to the Gulf and secondly to the Barataria waterway which will run from the New Orleans area to the vicinity of Grand Isle. In both cases these projects traverse areas of extreme importance particularly to the oyster industry. It is evident that the deep water outlet from New Orleans will cross the heart of the seed oyster producing area. A project of this size and magnitude could conceivably create disturbances to the ecological pattern of the area that would cause great damage to our principal seed oyster-producing section and result in large losses to the oyster industry as a whole.

In an attempt to prevent such damages we have cooperated from the inception of this project and have had full cooperation from the project engineers in designing certain methods of spoil placement, location of the channel and other factors which we hope will hold damages to the oyster

seed area to a minimum. The magnitude of the project, however, behooves us to predict its full impact upon the area. At the present time the U. S. Fish and Wildlife Service in cooperation with the State of Louisiana is making continual studies of the area.

In the Barataria Bay area the Barataria Bay Waterway, although smaller, presents certain problems in spoil placement and channel location. Here again full cooperation has been had with the Public Works Department and the Corps of Engineers in aligning this channel, in the proper placement of spoil as well as in allowing openings for natural drainage across the channel. It is hoped that such corrections in the project plans will reduce damages to a minimum. However, since these two projects are the first in this area which have been studied in their entirety it will be some time before we are aware of their full impact on the area.

The real answers of course to the problems which exist in the fisheries along our coast is not one of prevention of damage. No matter how successful we are in arresting damages the continual construction of projects will eventually take their toll and production will be reduced beyond the point of economic feasibility. The answer is to devise some positive method to increase production. Biologists, like many professional people, may disagree on points of theory, however, if there is one thing that the biologists familiar with the Louisiana coast do agree upon it is that the introduction, particularly the controlled introduction of fresh water to the marshes would be the greatest single method to enhance production of all species of wild life and fish. These specialists have ample evidence to back up their thinking. For example studies of various crevasses in the past, studies of the opening of the Bonnetcarre Spillway on several occasions, historical studies of flood cycles, and the production of fisheries in the area all tend to indicate that if fresh water is introduced at the proper time during the year and in the proper volume that optimum salinity regimes can be established for maximum production.

The introduction of fertile mineral waters from the Mississippi will greatly increase the food for the various animals in the area. With this in mind the Louisiana Wild Life and Fisheries Commission established a pilot control structure at Bayou La Moque in recent years. This structure though quite small has been effective over a limited area and has demonstrated amply that fresh waters introduced into the marshes can and will significantly increase oyster production, reduce predation and to a large extent eliminate diseases.

The real problem in any fresh water introduction project however, is to insure adequate volumes of fresh water at the proper time during the year. In order to do this the cost will be high and, too, we still will be dependent upon water stages in the Mississippi River. No system of pumping is considered to be economically feasible in view of the extreme quantities of water that will be needed in order to reduce salinities to levels which are needed for ecological control. The only answer seems to be openings in the levee at strategic points with proper control structures

so that when river stages rise above certain levels water can be introduced to the marshes by the operators. Such introduction will of necessity be carefully controlled and should be guided solely by the hydrographic and ecological picture of the area prior to introduction and throughout the flow of water.

In order to attempt the first such water control program in the Louisiana marshes a project proposal has been developed in cooperation between the United States Department of the Interior, U. S. Fish and Wildlife Service and the Louisiana Wild Life and Fisheries Commission with considerable assistance from the U. S. Corps of Engineers and the Louisiana Department of Public Works. This project calls for openings with control structures in the levee below the city of New Orleans. Two such openings are on the east side and two are on the west side. The total cost of these four proposed openings is estimated to be \$8,000,000.00, area one to cost \$2,857,000.00, area two, \$920,000.00, area three, \$1,670,000.00 and area four, \$2,560,000.00. While any taxpayer certainly must agree that this is a large expenditure of monies for a project of this character, it should be noted that balancing out estimated benefits we arrive at a cost benefits ratio of 1.1 to 1 which is adequate for a project of this type and for the appropriation of such funds. Certain additional intangible benefits associated with recreational and sport fishery will occur.

It is our hope that we can prevail on congress to appropriate monies for at least one opening. We would actually prefer to do one area first in order to determine the proper operation for maximum benefits. At the present time this proposal has been submitted as a modification of the M.R.T. project.

The problems along the coast of Louisiana are many and varied, and it is our belief that the value of the commercial and recreational fisheries on this coast are of such magnitude that they should receive adequate consideration in all projects. Second, we will continue to cooperate and work diligently with all parties involved in water control in order to prevent or lessen damages and ecological changes on the coast. We also have hopes that our approach to fresh water introduction into the marshes with partial or complete control of fishery production will point to a new way in fishery management over large areas. If we can believe in the predictions of human population explosions and the great need for food in the years ahead, in all probability we will have to turn to the sea and control of the sea and its products if we can expect the human race to survive. +

Pompano Parade (Continued from page 4)

pompano anglers who start with the smaller members of the pompano family and work up to the big brothers.

Searching the pompano trail eventually brings an angler into contact with the permit, or Great Pompano. This fish is one of the largest of all pompanos. It reaches a length of three feet and a weight of 27 pounds or more. Fishermen find it in the West Indies and north to Florida. It occurs around Key West and is occasionally taken in Indian River. The permit is an excellent food-fish, not as good as the common pompano, but generally sold as that species and bringing as good a price.

Aside from printer's ink, this reporter has a pompano pulse. It struck on a trolled squid and put up a battle that will long be remembered. Tipping the scales at an even 50 pounds, the big pompano was positively identified by the Smithsonian Institution's United States National Museum and the National Geography Society. That should have completed the trip along the pompano trail, but it didn't.

A fellow with a pompano pulse just naturally gets excited when Mardi Gras month signals the peak of the pompano parade. +

Harmless Snakes of Louisiana (Continued from page 19)

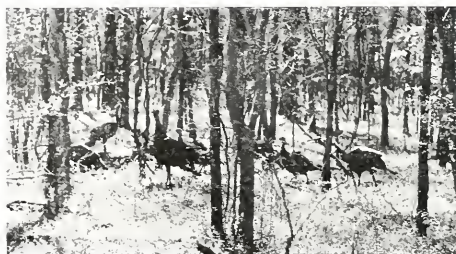
distribution in Louisiana and any amateur naturalist is likely to make a nero discoveries.

A list of the thirty species of harmless snakes recorded from Louisiana, with their local common names, their scientific names, and brief notes on where they are most likely to be found, is given below.

HARMLESS SNAKES

- GREEN WATER SNAKE—(*Natrix cyclopion cyclopion* Dumeril and Bribon); statewide in swamps, marshes and along water-courses.
- DIAMOND BACK WATER SNAKE—(*Natrix rhombifera* Hallowell); shows a preference for lake shores and large watercourses throughout state.
- YELLOW BELLY WATER SNAKE—(*Natrix erythrogaster transversa* Hallowell); statewide in ponds, swamps, marshes and along watercourses.
- BANDED WATER SNAKE—(*Natrix sipedon fasciata* Linnaeus and varieties); statewide in ponds, swamps, marshes and along watercourses.
- SALT MARSH WATER SNAKE—(*Natrix clarkii* Baird and Girard); brackish water ponds and marshes near the coast.
- GRAHAM'S WATER SNAKE—(*Natrix grahami* Baird and Girard); statewide but rare.
- GLOSSY WATER SNAKE—(*Natrix rigida* Say); statewide but rare.
- SPOTTED BROWN SNAKE—(*Storeria dekayi wrightorum* Trapido); statewide except in swamps and marshes.
- RED BELLY BROWN SNAKE—(*Storeria occipitomaculata* Storer); Coastal Plain terraces and uplands east and west of Mississippi Valley.
- STOUT GARTER SNAKE—(*Thamnophis sirtalis sirtalis* Linnaeus); mainly in Coastal Plain terraces and uplands.
- SLENDER GARTER SNAKE—(*Thamnophis sauritus proximus* Say); mainly in alluvial lands and marshes.
- ROUGH GROUND SNAKE—(*Haldea striatula* Linnaeus); statewide, secretive.
- SMOOTH GROUND SNAKE—(*Haldea valeriae elegans* Kennicott); Coastal Plain terraces and uplands, very secretive.
- SPREADING ADDER, HOGNOSE SNAKE—(*Heterodon platyrhinos* Latreille); statewide, mainly in sandy soils.
- YELLOW LIP SNAKE—(*Rhadinea flavilata* Cope); Florida parishes.
- RINGNECK SNAKE—(*Diadophis puctatus strictogenys* Cope); statewide.
- WORM SNAKE—(*Carphophis amoenus* Say); Coastal Plain terraces and uplands.
- RAINBOW SNAKE—(*Abastor erythrogrammus* Latreille); Florida Parishes.
- HORN SNAKE—(*Farancia abacura reinhardtii* Holbrook); statewide in and near swamps.
- BLACK RACER, BLUE RACER, BROWN RACER, BUTTERMILK RACER—(*Coluber constrictor* Linnaeus and color varieties); statewide except in swamps and marshes.
- COACH WHIP SNAKE—(*Masticophis flagellum flagellum* Shaw); higher Coastal Plain terraces and uplands.
- ROUGH GREEN SNAKE—(*Ophedrys aestivus* Linnaeus); statewide.
- PINE SNAKE, "CORN SNAKE"—(*Elaphe guttata* Linnaeus); Florida Parishes.
- LIVE OAK SNAKE, "CHICKEN SNAKE"—(*Elaphe obsoleta* Say and color varieties); statewide.
- SPOTTED BULL SNAKE—(*Pituophis melanoleucus* Daudin); rare in central Louisiana hill country; a black variety in Washington Parish.
- SPECKLED KING SNAKE—(*Lampropeltis getulus holbrooki* Stejneger); statewide.
- PRAIRIE KING SNAKE—(*Lampropeltis calligaster calligaster* Harlan); West Louisiana.
- SCARLET KING SNAKE—(*Lampropeltis dolia amaura* Cope); statewide, secretive; a mimic of the coral snake. A different variety in the Florida Parishes.
- SCARLET SNAKE—(*Cemophora coccinea* Blumenbach); Florida Parishes; a mimic of the coral snake.
- CROWN SNAKE—(*Tantilla coronata coronata* Baird and Girard); Florida Parishes. +

Commission Sets Turkey Season



Louisiana wild turkeys! The Fish and Game Division of the Louisiana Wild Life and Fisheries Commission reports a healthy population of wild turkeys in those parishes where turkey hunting will be allowed this spring.

THE LOUISIANA Wild Life and Fisheries Commission set dates for a nine-day wild turkey (gobblers only) hunting season during April. The hunting period, April 8-16, was established at the regular monthly meeting of the commission, Tuesday, January 24.

John D. Newsom, chief of the fish and game division of the commission, recommended that turkey hunters be granted nine days instead of the former seven-day seasons set in 1959 and 1960.

"This would provide two week ends of turkey hunting and two additional days of hunting," he said.

The 1959 and 1960 seasons covered the period April 2-8. Last year, cool weather during the first week of April was considered to have a definite adverse effect and contributed to a low kill in those areas of Louisiana where wild turkey hunting was permitted, Newsom said.

A slightly later start with the additional two days granted should result in better hunter success.

In fixing the 1961 season, the commission banned the practices of baiting for hunting of wild turkeys; and the use of dogs to hunt turkeys. These are two practices which were not covered by state law or commission regulations in 1960 and previous years.

The bag limit was set at one turkey gobbler (male) per hunter per season on specified open areas only. These areas are as follows:

1. That part of Washington and St. Tammany parishes lying east of La. Hwy. 25 from the Mississippi Line to Covington (Franklinton-Covington Road), east and north of U. S. Hwy. 190 from Covington to the junction of U. S. Hwy. 90, north of U. S. Hwy. 80 from the junction with 190 to the Mississippi Line.

2. That area lying east of Thompson Creek from the Mississippi Line to La. Hwy. 10, north of La. Hwy. 10 from Thompson Creek to Clinton, east of La. Hwy. 67 from Clinton to the junction of U. S. Hwy. 190 at Baton Rouge, north of U. S. Hwy. 190 from La. Hwy. 67 to the Amite River, east of the Amite River from U. S. Hwy. 190 to Lake Maurepas, north of Lake Maurepas from

the Amite River to U. S. Hwy. 51, west of U. S. Hwy. 51 from Lake Maurepas to Mississippi Line including portions of East Feliciana, East Baton Rouge, Livingston, St. Helena, and Tangipahoa parishes.

3. Those parts of Madison, Franklin, Tensas, and Concordia parishes, south of U. S. Hwy. 80 from the Mississippi River to Delhi, east of La. Hwy. 17 from Delhi to Winnsboro, east of La. Hwy. 15 from Winnsboro to Clayton, west of U. S. Hwy. 65 from Clayton to the junction of La. Hwy. 895, and west of La. Hwy. 895 from the junction of U. S. Hwy. 65 to the Mississippi River.

4. That area in Morehouse parish lying east of the Ouachita River from the Arkansas line to the Terzia refuge, north of the Terzia refuge from Ouachita River to Stevenson, east of the Missouri-Pacific Railroad from Stevenson to the junction of La. Hwy. 139, north and west of La. Hwy. 139 from the junction of the Missouri-Pacific Railroad to the junction of La. Hwy. 140 at Log Cabin, north and west of La. Hwy. 140 from Log Cabin to the junction of U. S. Hwy. 165 at Bonita, and west of U. S. Hwy. 165 from Bonita to the Arkansas line.

It was also established that the Chicago Mill Game Management area, located in Franklin, Madison and Tensas parishes, be opened for turkey hunting by permit only concurrent with other open areas. State hunting regulations and laws shall apply. Construction of "Tree Stands" is prohibited. Hunting permits are to be issued upon request only from the District Office, P. O. Box 426, Ferriday, Louisiana. The permit will be valid on this game management area each day during the open season. Four check stations will be established on the area (locations to be announced later) and hunters killing a turkey are hereby required to have their bird checked at one of the stations.

In recommending the season for wild turkey hunting set by the commission, Newsom pointed out that field reports indicate a healthy condition of the flocks in the specified areas; and that last year's relatively low kill coupled with fine condition of the flocks fully warranted an additional two days of hunting. +

The *B*ird of the month

EASTERN WILD TURKEY

Meleagris Gallopavo Silvestris

Hannah Yates

WHEN THE NEW ENGLAND colonists arrived on our shores they brought with them several species of barnyard fowl, and among them was the turkey. However, much to their surprise, they found this bird already here flying abundantly in the hardwood forests.

History tells us that the Spaniards were the first to introduce the turkey into Europe. When they came in search of gold among other things the conquistadors also found the Emperor Montezuma raising turkeys to feed to the animals in his zoo. Finding the birds a tasty dish, and fit for human consumption, the Spaniards brought some of these birds back to Spain and their popularity spread throughout western Europe and they also became a common domestic animal in England and naturally came back to this continent with the colonists.

Originally the wild turkey ranged from the Atlantic coast to the Rocky Mountains, and from Central America to Canada. At present their far-flung domain has withered to a few states and conservationists, wherever the turkey still exist, are fighting a battle to effect their comeback, in spite of the encroachments of civilization, by means of game law enforcement and conservation education.

There has been much conjecture as to how the turkey got its name. Everyone who has heard their calls knows they give voice to a call which sounds like "turk, turk, turk", whereas, on the other hand the males also give voice to a "gobble, gobble, gobble". It has also been established that some of the Indian tribes referred to the birds as "furkee". So one guess is as good as another.

The wild turkey *Meleagris gallopavo* through its seven sub-species once inhabited nearly one-half of the United States. There are only minor differences or color variations, etc. between these seven sub-species but the Eastern variety of the true wild species may be distinguished from the domesticated turkeys by the deep chestnut tips of the tail feathers as compared to the white-tipped tail feathers of the domestic variety. The more colorful cousins, the ocellated turkey of Yucatan, British Honduras and Guatemala belong to another genus, *Agrocharis* and the specific



name of *ocellata* refers to the eye-like spots of bright metallic blue which occur on the tail feathers.

Our wild turkey in Louisiana is called the eastern wild turkey and its scientific name is *Meleagris gallopavo silvestris*. It is formerly not uncommon as a permanent resident throughout most of the state. It is now, however, greatly reduced in numbers and confined chiefly in the central northern and northeastern parts of the state although scattered small flocks are apt to be found in other locations. Two fine specimens of this subspecies are on exhibit at the Louisiana Wild Life and Fisheries Museum in New Orleans.

It is hardly necessary to describe the turkey's appearance to any native American inasmuch as our ordinary domestic stock still retains the distinctive features of the wild turkey and all are familiar with this Thanksgiving delicacy.

The wild turkey makes its nest in a depression which it scoops out and lines with leaves. +

MRS RUTH CAMPBELL
CURATOR OF LA ROOM
LA STATE UNIV
BATON ROUGE LA



Pelicans in Flight Along The Louisiana Coast

Louisiana's State Bird

The long billed Pelican, a familiar sight on the Louisiana coast, is the official state bird and is seen on the state seal. In flight the birds are graceful and beautiful to behold.

